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Megaesophagus in an 8-month-old cat secondary to a laryngomucocele

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Abstract

Case summary An 8-month-old spayed female cat presented with a 7-week history of progressive dyspnoea, dysphagia and regurgitation. Plain radiography revealed megaoesophagus with a large, rounded, soft tissue opacity laryngeal mass. Endoscopic examination revealed a fluid-filled lesion, which was lanced and drained completely. As a result of recurrence of the mass and infection 2 days later, the mass was surgically excised. The mass was diagnosed as a laryngomucocele based on clinical and histopathological findings. Clinical signs resolved immediately after removal of the mass, the megaoesophagus resolved a couple of days postoperatively and no relapse was noted over the following 3 years.

Relevance and novel information To the author's knowledge, this is the first case of laryngomucocele described in a cat. This cause should be included in the differential diagnosis of respiratory obstruction and acquired megaoesophagus in cats. This report demonstrates that megaoesophagus resulting from a respiratory obstruction resolves spontaneously after removal of the obstruction; therefore, respiratory tract assessment should be recommended in cats with signs of megaoesophagus because the prognosis could be good compared with other causes of megaoesophagus.

Keywords: Megaesophagus; laryngomucocele; laryngeal mass; laryngopyocele; upper respiratory tract obstruction

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Case description

An 8-month-old spayed domestic shorthair cat presented to the internal medicine service at the referral clinic Vetivia in Biarritz with a 7-week history of progressive dyspnoea, dysphagia and regurgitation. The cat had not been eating or drinking for 2 days and presented a reduced level of activity. The owner reported that the clinical signs first appeared after ovariectomy 8 weeks prior and had worsened over time. According to the referring veterinarian, no abnormality was noted during the spaying procedure and no adverse incidents were reported; however, a laryngoscope was not used to properly visualise the larynx because the cat was not intubated with an endotracheal tube, as a supraglottic airway device (feline V-gel; Docsinnovent) was used instead.

On physical examination, the cat was thin (body condition score 3/9) and mildly dehydrated based on a minimal loss of skin turgor and semi-dry mucous membranes. The cat's temperature and heart rate were normal and the cardiac auscultation and the abdominal palpation were unremarkable. Increased inspiratory effort with paradoxical abdominal movement and significant stertor were noted. Auscultation of the lung field was difficult because of enhanced upper airway sound. A painless fluctuant smooth swelling over the cervical region was also noted. Complete blood count and serum chemistry were unremarkable.

Conscious lateral and ventrodorsal radiographs of the neck and thorax were performed as part of the initial

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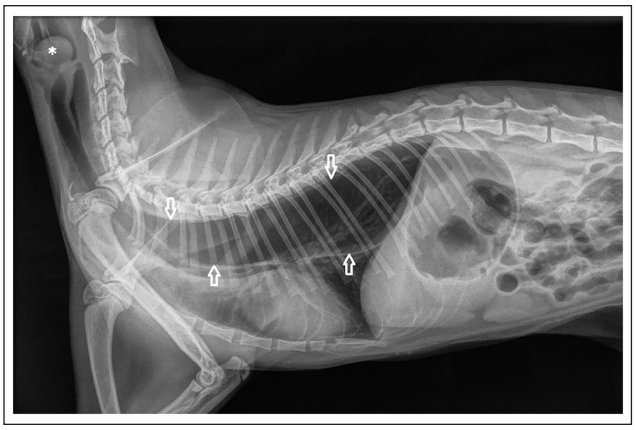

Figure 1 Right lateral cervical and thoracic radiographic image. There is a large, smoothly marginated, ovoidal soft tissue opacity mass in the region of the larynx. The mass was a homogeneous soft tissue opacity (asterisk), clearly outlined by surrounding air. The oesophagus and the stomach were severely dilated with air (arrows)

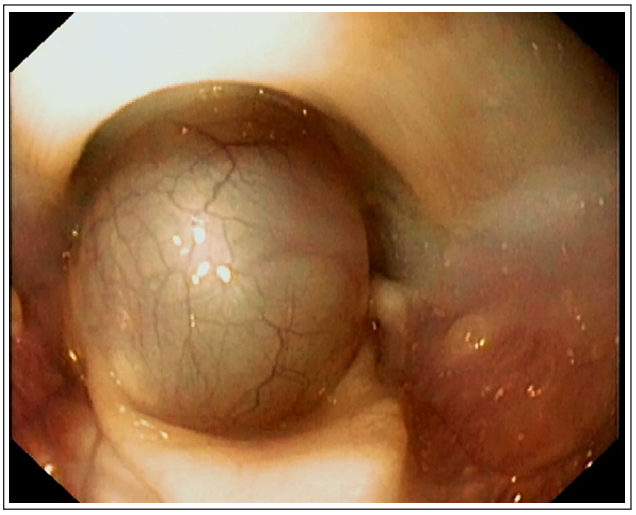

Figure 2 Endoscopic photograph of the laryngomucocele. The mass caused a nearly complete airway obstruction

investigation (Figure 1). Thoracic radiographs obtained at that time confirmed the presence of a large pharyngeal/laryngeal soft tissue opacity associated with a generalised gas dilation of the oesophagus. There was no radiographic evidence of aspiration pneumonia.

Direct laryngoscopy confirmed the presence of a large, smooth mass immediately in front of the larynx causing a nearly complete airway obstruction (Figure 2). The mass originated from the right arytenoid cartilage. The mass was punctured and mucoid fluid was collected. The lesion was totally emptied. Assessment of the liquid was consistent with a cyst. Based on these findings, a laryngomucocele was suspected. The same day, the cat began eating again without dysphagia or regurgitation, and the stertor and dyspnoea resolved.

Thoracic and cervical radiographs were performed 48 h after the procedure. Despite the absence of clinical signs, the mass had recurred, and oesophageal distension was still noted. Surgical excision was elected. The mass was emptied again under sedation to allow intubation. A purulent fluid was collected, in which a cytological examination revealed degenerated neutrophils with intracellular bacteria consistent with septic exudate. Antibiotics (amoxicillin–clavulanate 20 mg/kg IV) were started immediately as well as methadone for analgesia (0.2 mg/kg IV) during the operative period. A right lateral pharyngotomy was performed to access the laryngomucocele. A circumferential mucosal incision was performed around the laryngomucocele and the membrane was removed. Endoscopic examination immediately after the surgery showed pharyngeal oedema, but the opening of the airways was normal.

Antibiotic (amoxicillin–clavulanate 20 mg/kg q12h), corticosteroid (prednisolone 1 mg/kg/day), antiemetic (maropitant 1 mg/kg/day) and analgesia (buprenorphine 0.02 mg/kg q12h) medications were administered intravenously for 2 days postoperatively. The patient was fed small, frequent, soft-consistency meals in an upright position. Mild pharyngeal dysphagia was noted with several instances of regurgitation for 2 days postoperatively. Clinical signs and oesophageal dilation on radiographs resolved 3 days postoperatively and the cat was discharged. Antibiotics, corticosteroids and antiemetics at the same dosage were continued until the next visit 1 week later.

On re-examination 1 week later, the owner reported the cat as having an excellent appetite, the cat's weight had increased by 300 g and only one episode of regurgitation had been noted. Dyspnoea and stridor were completely resolved. Cervical and thoracic radiographs were unremarkable, and no mass or oesophageal distension was noted.

A histopathological examination revealed a laryngeal mucosal invagination covered by a stratified epithelium and cystic dilations. These findings were consistent with a laryngomucocele. Three years postoperatively, no relapse was reported.

Discussion

To the author's knowledge, this is the first case of laryngomucocele described in a cat. In the present case, the laryngomucocele was associated with a severe oesophageal dilation with resolution of clinical signs after its resection.

Laryngocele, although an uncommon entity in human medicine, is more frequent than laryngomucocele.[1–4] Laryngocele is an abnormal cystic dilatation of the saccule or appendix of the laryngeal ventricle, filled with air and communicating with the lumen of the larynx.[1–6] When the neck of the laryngocele is obstructed, it fills with mucus of a glandular secretion and becomes a

laryngomucocele. When this lesion becomes infected, a laryngopyocele is formed.[6]

The precise aetiology of laryngocele and laryngomucocele is unknown. It is believed that laryngoceles occur in subjects with congenitally dilated saccules, predisposing them to the formation of laryngoceles under the influence of acquired factors. Factors that increase intraglottic pressure, such as professional trumpet playing, glass blowing, singing, straining during passing of stools and carcinoma of the larynx, are considered to promote the development of laryngoceles in humans.[1–6] In the present case, no predisposing factors were noted, although the V-gel device could have induced lesions on the larynx.

A congenital lesion could not be definitively ruled out because of the absence of a proper laryngeal examination when the supraglottic airway device was placed. Moreover, a laryngocele may have been present before the spay procedure and the V-gel device could have caused an obstruction of the opening and hence mucocele development.

The development of the laryngomucocele into a laryngopyocele in this case was likely secondary to the first drainage. A bacterial culture with sensitivity could have been interesting but was not carried out because an infection by commensal bacteria was strongly suspected and also because the abscess was going to be drained at the same time as the laryngomucocele resection.

The most frequent presenting symptom in humans is hoarseness, but variable degrees of dyspnoea, dysphagia, cough and stridor may be present, depending on the dimensions of the laryngocele.[1–5]

A diagnosis of laryngocele is based on clinical signs, physical examination, radiographic imaging and an endoscopic examination of the larynx. Currently, there is no consensus regarding their surgical treatment, and various modalities of treatment have been utilised. The traditional treatment of a laryngocele was excision using an external approach. Advances in endoscopic techniques and the development of laser surgery have generated a new philosophy in the management of laryngeal diseases. Microlaryngoscopy with the use of a CO_2 laser has become the main therapeutic procedure for the treatment of laryngoceles over the past 20 years.[7]

An antiemetic was used to prevent postoperative complications such as vomiting, as there was increased risk of aspiration due to oedema of the larynx. A corticosteroid was used to attenuate postoperative laryngeal oedema. Because of the use of steroids, a non-steroidal anti-inflammatory drug was contraindicated and buprenorphine was administered for analgesia.

Megaoesophagus in cats is an uncommon clinical presentation and can be idiopathic, congenital or associated with a variety of causes, including myasthenia gravis, dysautonomia, esophagitis, cardia mass, lead toxicosis, oesophageal stricture or upper respiratory tract obstructive disease. Several cases of megaoesophagus in cats induced by upper respiratory tract obstruction, such as nasopharyngeal polyp or laryngeal paralysis, have been previously described.[8–12] In all cases, thoracic radiographs revealed a severe generalised megaoesophagus and evidence of aerophagia, as in the report presented here. It is speculated that the massive aerophagia is secondary to excessive negative intrathoracic pressure, as the cat inhales against a closed larynx. This results in gas distension of the oesophagus and extreme oesophageal dilatation.

Resolution of the airway obstruction resulted in normalisation of the intrathoracic pressure and aerophagia, leading to rapid resolution of the secondary problems. Thoracic radiographs performed 3 days postoperatively documented complete resolution of the oesophageal dilatation, indicating that the pressure change after surgery had an immediate and profound effect. The spontaneous resolution of the megaoesophagus in this cat after laryngomucocele resection implies that the megaoesophagus was secondary to the obstructive nature of the laryngomucocele. Cats with megaoesophagus should be evaluated for upper airway obstruction. The prognosis for the resolution of megaoesophagus in cats with an upper airway obstruction may be good if the obstruction is treated and resolved, in contrast with the guarded prognosis with other causes of megaoesophagus in cats.

Careful history taking and a thorough physical examination should be performed in all cats with megaoesophagus. Indeed, without a laryngeal examination warranted by the respiratory signs, regurgitation and thorax imaging could have erroneously led to the diagnosis of a congenital megaoesophagus. In cases of congenital megaoesophagus, euthanasia is frequently elected owing to poor prognosis and quality of life. It should therefore be recommended to rule out a respiratory obstruction in young cats presenting with megaoesophagus.

Conclusions

To the author's knowledge, this is the first case of laryngomucocele described in a cat. This cause must be included in the differential diagnoses of respiratory obstruction and causes of megaoesophagus in cat. The report demonstrates that megaoesophagus resulting from a respiratory obstruction resolves spontaneously after removal of the obstruction; therefore, respiratory tract assessment is recommended in cats with signs of megaoesophagus, because the prognosis could be good compared with other causes of megaoesophagus.

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Ethical approval The work described in this manuscript involved the use of non-experimental (owned or unowned) animals. Established internationally recognised high standards ('best practice') of veterinary clinical care for the individual patient were always followed and/or this work involved the use of cadavers. Ethical approval from a committee was therefore not specifically required for publication in *JFMS Open Reports*. Although not required, where ethical approval was still obtained, it is stated in the manuscript.

Informed consent Informed consent (verbal or written) was obtained from the owner or legal custodian of all animal(s) described in this work (experimental or non-experimental animals, including cadavers) for all procedure(s) undertaken (prospective or retrospective studies). For any animals or people individually identifiable within this publication, informed consent (either verbal or written) for their use in the publication was obtained from the people involved.

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